

the palatine bones cannot be ascertained, on account of the dry state of the specimen. The snout is short, not much longer than the eye, the diameter of which is one-sixth or one-seventh of the length of the head. The eye is situated immediately below the upper profile of the head; the nostrils are close together, midway between the eye and the extremity of the upper jaw. Inter-orbital space flat, its width being contained thrice and three-quarters in the length of the head. Cheek very flat and broad, entirely covered by the two posterior infraorbital bones, which extend downwards and backwards to the limb of the præoperculum; they are finely striated, like the operculum. Operculum more than twice as high as long, with the posterior margin rounded and continued into a broad membranous strip. Sub- and inter-operculum very small. The course of the muciferous channels through the bones of the head is indicated by a number of oblong cavities closed by membrane.

The dorsal fin is placed above the hind part of the anal, terminating at no great distance from the caudal; its anterior rays are short, and increase in length to the twelfth, behind which the rays again become shorter. Caudal fin rounded; anal of the same height as the dorsal, the rays about the twenty-fourth being the longest. The first pectoral ray is exceedingly strong, compressed, and nearly as long as the head; however, it does not extend to the very short ventral fin, the base of which corresponds to the eleventh scale of the lateral line.

The scales are very large, higher than long, with the exposed surface minutely granulated, and with a network of fine channels over the inner surface, the meshes being concentrically arranged round a larger mesh in the middle. Each scale of the lateral line is pierced by a single large elliptical hole.

The entire body is finely dotted with brown; vertical fins and opercular membrane with small whitish spots.

XXII.—*Description of a new Species of Callionymus from Australia.* By Dr. ALBERT GÜNTHER.

Callionymus Papilio.

THIS species belongs to the group with the gill-opening reduced to a small foramen on the upper side of the neck, and with the lateral line single.

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Præopercular spine considerably shorter than the head, bifid at its extremity, both points being directed upwards. The rays of the vertical fins long, those of the second dorsal longer than those of the first, and nearly equal in length to the middle caudal

rays, which are not quite half as long as the body: the last anal ray prolonged. The ventral fin extends beyond the origin of the anal. Body light brownish, marbled with darker; the lower part of the sides of the trunk and tail with numerous pearl-coloured vertical lines; belly pearl-coloured. Sides of the head with numerous small white ocelli edged with violet. Both dorsal fins with large, rather irregular, rounded whitish spots, each with a narrow violet edge; there are fine white dark-edged lines and dots within the large spots; a narrow, black, blue-edged spot behind the extremity of the first dorsal spine. Caudal and pectoral fins with white dots, which are mixed with brown ones on the lower half of the caudal. Oblique pearl-coloured lines behind each anal ray.

Melbourne. The description is taken from a male specimen, 5 inches long.

XXIII.—On the Structure of Antipathes.

By M. LACAZE-DUTHIERS*.

Two species form the subject of this memoir—namely, *Antipathes subpinnata* and *A. Larix* (Esper, Lamarck). Of all the Corals, they are the most difficult to investigate; and no doubt it is on this account that we have so little precise information about them. They live at great depths, and are only brought up by those coral-fishers who work upon the rocks. They are formed of so delicate a tissue that the shortest exposure to the air is sufficient to dry them up; and as it is only with great trouble that the fishers can be persuaded to keep them in water while they are at sea, the naturalist has much difficulty in obtaining them in a fit state for examination.

In the two species which I have observed living, the polypes are regularly arranged in a line upon one side only of the branches—namely the upper surface, or that which is opposite to the attachment of the polypary.

Each animal, as observed by Ellis, Solander, and Dana, has six tentacles, arranged in a rosette round the mouth. These tentacles do not appear to elongate themselves much; most frequently they seemed to be merely six large tubercles; but, perhaps, in the normal condition at the bottom of the sea the elongation may be greater. The body does not rise into a tube projecting above the sarcosoma, but only forms a mamilla: in this respect it is very different from that of *Gerardia*.

The diameter of the rosette of the largest polype in *A. subpinnata* does not exceed 1 millim., and it is larger than that of *A. Larix*. Judging from the observations which can be made

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